

AMENDMENTS TO THE DRAWINGS

The attached sheet includes changes to Figure 1 correcting an error in the designation of the second device 3(b).

Attachment: Replacement Sheet(s)

REMARKS/ARGUMENTS

In response to the Office Action mailed September 30, 2005, Applicants amend their application and request reconsideration. No claims are added or cancelled so that claims 1, 2, 4-8, and 10-16 remain pending.

Status of Prosecution

A first Office Action was issued for this patent application on October 5, 2004. A response was filed December 30, 2004. The Examiner had overlooked the Preliminary Amendment filed simultaneously with the patent application and thus asserted that the Amendment filed December 30, 2004 was Non-Compliant because it did not demonstrate the basis upon which the new claim amendments were submitted.

In reply to a Notice of Non-Compliant Amendment, on July 1, 2005, Applicants pointed out that the response filed December 2004 was entirely correct and was based upon the claims as previously amended in the Preliminary Amendment. As proof of the Preliminary Amendment, an additional copy of that Amendment from the Image File Wrapper was attached to the July 1, 2005 response.

Through confusion engendered in part by the Image File Wrapper, the Examiner considered the remarks of the Amendment filed December 30, 2004, but applied those remarks to the claims of the Preliminary Amendment, not the claims that were submitted with the Amendment of December 30, 2004. Based upon this incorrect examination, the very complex Office Action of September 30, 2005 was mailed. The complexity of that response and the large number of errors that it contains has required substantial work in preparing this response and to the delay in its filing.

In an informal telephone conversation, the Examiner, in October of 2005, offered to issue a new Office Action upon request. In a voice mail message left with the Applicants' representative on October 27, 2005, Supervisory Examiner David Wiley, stated that a formal response should be filed to the Office Action of September 30, 2005, rather than seeking a replacement Office Action without responding on the merits. Supervisory Examiner Wiley stated in his message that the finality of the rejection of September 30, 2005 would be withdrawn upon the filing of this request.

Notwithstanding these offers, in view of the long delay in responding to the first Office Action, and in an attempt to advance the prosecution, Applicants have submitted this response as an RCE in order to avoid any necessity of filing a Notice of Appeal to prevent abandonment of the patent application. Applicants respectfully request careful and prompt examination of the patent application. The confusion and errors that have occurred have placed an undue and unfair financial burden on the Applicants.

Drawing Correction

In preparing the Response to the Office Action, an error in Figure 21, incorrectly identifying both of the devices as 3a was identified. That error is corrected here and a replacement drawing sheet is attached. Approval and entry are respectfully requested.

Request for Acknowledgement of Priority Document

The present patent application is based upon Japanese Patent Application 2000-360280, filed November 27, 2000. In the Amendment filed December 30, 2004, Applicants requested acknowledgement of receipt of the certified copy of that Japanese patent application, i.e., the priority document. No response was found in the Office Action mailed September 30, 2005. Applicants again respectfully request acknowledgement of receipt of the priority document.

Nature of this Response

In view of the difficulty of responding to the Office Action of September 30, 2005 and the many errors that occurred due to the confusion between the previously submitted remarks and the pending claims, an attempt is made here to respond point-by-point to the Office Action of September 30, 2005. The format of the response is intended to clarify, rather than obscure, any remaining issues in the prosecution of this patent application.

As a general comment, in this Amendment the claims have been amended for clarity but with no intention of substantive amendment of the claims. In the embodiments of the invention described in the patent application, a single controller provides synchronization of timing with various devices that are controlled. In the embodiments

encompassed by independent claims 1 and 7, one controller controls numerous devices through a network. This arrangement has been made clearer by referring in claims 1 and 7, and the claims that depend from claims 1 and 7, to a single controller rather than to multiple controllers. These changes do not limit the scope of the claims but correlate the claims more easily with the description of the patent application. Claim 1, for example, can be compared to the embodiment of Figure 3. Claim 7 can be compared to the embodiment of Figure 9. The invention according to claim 15 includes a dual controller that controls devices connected to two separate networks. Each controlled device is connected to only one of those networks but the controller provides control of several devices through each of the networks. Claim 15 can be compared to the embodiment of Figure 21 of the patent application.

All other changes to the claims are intended to improve the form of the claims and the ease of understanding what is claimed. An attempt has been made to make all of the language referring to the same elements uniform throughout the claims, for example, by eliminating the word "control" in the paragraph that is the third paragraph from the end paragraph of claim 7 and correcting "periodic" to "period" within claim 14.

Response to Drawing Objections

The three drawing objections from the first Office Action were repeated in the Office Action mailed September 30, 2005. Each of these objections was responded to December 30, 2004. Those responses are incorporated here by reference and are, in addition, supplemented with the following remarks.

The drawings allegedly failed to show the correcting unit described in the first alternative functional limitation of claim 14. That language no longer appears at that location in claim 14 so that the drawing objection must be withdrawn.

The drawings were objected to as not showing a third global timer. Claim 15 refers to a third global timer. In that claim, the first and second global timers are part of the controller. The third global timer is part of a device that is connected to the first or second network. Turning to the embodiment of Figure 21, the first and second global timers of the controller 2 are elements 13A and 13B. The global timers in the devices 3a

and 3b are numbered 13a and 13b, respectively. Each of these timers 13a and 13b corresponds to the third global timer of claim 14. Thus, the drawings show that timer. The objection is and was erroneous. If there was confusion because no single element includes three global timers, then it must be pointed out that if the global timer of the device were referred to without an ordinal number prefix, there might be an objection or rejection for failing to identify the various global timers clearly.

In the third drawing objection, the Examiner asserted that the second transmitting unit of claim 15 is not illustrated in any figure of the patent application. As pointed out in the previous response, claim 15 no longer recites a second transmitting unit. In fact, claim 15 does not recite a first or a second transmitting unit. The objection is and has been moot.

First Paragraph Rejections

The rejection of claim 2 and the corresponding objection to the specification pursuant to 35 USC 112, first paragraph, appearing in the Office Action of October 5, 2004 was repeated *verbatim*. This rejection and the corresponding objection were fully responded to in Amendment filed December 30, 2004. The cited language was previously replaced with “synchronous timing time” as supported at page 20 of the patent application. The rejection and corresponding objection were already moot when the Official Action of September 30, 2005 was mailed.

The rejection with regard to claim 15 as allegedly describing “a second transmitting unit” has already been responded to. In the previous Amendment, that language was removed from claim 15.

Second Paragraph Rejections

The assertion that the claim limitations “timer correction value” and “timer period correction value” are not supported in the specification was already responded to. Applicants again direct the Examiner’s attention to page 34, lines 10-22, and Figure 12 of the patent application. There, the timer correction is described as the time difference between the global time of the global timers 13a and 13b at the local sync timing of the

operation period timers 11a and 11b. The synchronous (system sync) time is indicated by the time stamp attached to the received periodic transfer packet 6. The timer correction value D12 is used to correct time deviation between the control period indicated by the control period timer 10 and the operation period timers 11a and 11b. The particular phrase "timer period correction value" was previously removed from the claims because the phrase is substantially the same as "timer correction value". The rejection has been overcome and should be withdrawn.

Prior Art Rejections

Claims 1-8 and 10-16 were rejected as anticipated by Voth (U.S. Patent 6,351,821). This rejection is moot as to all claims so rejected except for claims 1, 2, 4-6, 15, and 16. In the previous response, claims 1 and 3 were combined as amended claim 1 and claims 7 and 9 were combined as amended claim 7. Since claim 9 was not rejected as anticipated, amended claim 7 and its dependent claims 8 and 9-14 can no longer be rejected as anticipated by Voth. The rejection as to claims 1, 2, 4-6, 15, and 16 is respectfully traversed.¹

The rejection of claim 1 is nowhere explained in the Office Action. Rather, the explanation of the anticipation rejection begins with claim 7 and, after explaining the basis of the rejection with regard to claims 7-12, 14, and 15, merely states that claims 1-6, 13, and 16 "are rejected for similar reasons". Since claim 1 as filed and as previously presented for examination is an independent claim, Applicants believe that they are entitled to an explanation of the application made of Voth in rejecting claim 1. The following response is based upon a hypothesis of the basis of the rejection, founded upon a comparison of the terms of claims 1 and 7 and the comments in the Office Action regarding claim 7.

The Examiner, at least in rejecting claim 7, directed attention to columns 4-6 of Voth. According to those passages, Voth describes a computer network including a number of terminals 102, one of which is a single master terminal. The remainder of the

¹ In each of the prior art rejections, the Examiner stated that the claims were "closely interpreted". This description is novel and not explained. If an examination process different from the conventional or authorized examination process is being employed, Applicants request a detailed explanation of that process.

terminals 102 are designated as slave terminals. Of course, each of the terminals includes a clock and Voth provides for synchronization of the clocks of each terminal based upon instructions supplied by the master node 102a. Comparing Voth to the language of claim 1, the master node 102a would correspond to the controller of claim 1 and the slave nodes 102b... would correspond to the devices of claim 1 that are controlled by the controller. Presumably each of the slave nodes in Voth includes an internal controller that might correspond to the operation period timer of claim 1. However, there is no description in Voth that the slave terminals 102b... include respective correcting units corresponding to the correcting unit of claim 1. As made clear in claim 1, the correcting unit internally corrects its operation period timer by determining a time difference between a global time that is supplied by the internal global timer of the device, i.e., slave node, and a synchronous timing time that is indicated by the controller, i.e., the master node 102a of Voth. In the invention of claim 1, that correcting unit determines a timer correction value based upon a time difference that is internally calculated.

By contrast with the invention, the master node 102a in Voth calculates and schedules time changes and time adjustments for each of the slave units. Rather than determining a time difference within each slave unit, as in the invention, the Voth master unit resets, with adjusted times, all of the slave nodes to a particular specific time. See column 4 of Voth, beginning in line 34. Further, column 5 of Voth points out, beginning in line 7, that the slave nodes re-initialize the time clocks "to reflect the value specified by the master node 102a." Clearly, there is no determination within the slave nodes of the amount of any time adjustment that must be made as in the invention. Rather, in Voth, the slave nodes truly are slaves, not making any calculation in executing the synchronizing time adjustments. Because of this fundamental difference between the invention as described by claim 1 and its dependent claims 2, and 4-6, none of those claims can be anticipated by Voth.

Claim 15, encompassing the embodiment of Figure 21, describes a hybrid controller that provides synchronization for controlled devices that are connected to the controller through two different networks. Voth does not describe anything similar. Rather, Voth describes a single network through which all of the slave nodes are

connected to a single master node. There is no suggestion or concept in Voth of dividing the slave nodes into separate groups that might be considered connected through respective networks to a master node, including a duality of parts that interact to provide separate control packets to respective groups of slave nodes. Note that in the controller according to claim 15, there are separate global timers relating to synchronization of devices connected to respective networks. There is never any description in Voth that the master node 102a includes two global timers and divides those timers in synchronizing two different networks to which different groups of the slave nodes are connected. Because of this fundamental difference between what is disclosed in Voth and what is claimed in claims 15 and 16, Voth cannot anticipate either of those claims.

Claim 9 was rejected as unpatentable over Voth in view of Strong et al. (U.S. Patent 5,689,688, hereinafter Strong). To the extent this rejection may be applied to amended claim 7, which incorporates the limitation of originally presented claim 9, the rejection is respectfully traversed. Presumably, the rejection would also be applied to claims 8 and 10-14, claims which depend directly or indirectly from claim 7. The rejection is traversed as to all these claims but is discussed only with respect to independent claim 7. If claim 7 is not obvious in view of the asserted combination of Voth and Strong, then none of those claims 8 and 10-14 can be obvious in view of that proposed combination.

At pages 10 and 11 of the Office Action the Examiner acknowledged that the elements of originally presented claim 9, now part of claim 7, are missing from Voth. These elements include a correcting unit that provides for internal correction, within a device that is controlled by a controller, of the global timer within the device.² Strong does not supply to Voth the differences between claim 7 and Voth.

In citing Strong, attention was directed to column 13. What is described in that column is the sending of a burst of synchronization messages to controlled devices. In the controlled device, a local time stamp mark is inserted after at least one and,

² A similar internal time difference determination and timer correction value determination in the apparatus of claim 1 was shown to prevent anticipation of claim 1, as amended, by Voth. While the language describing the correcting units of claims 1 and 7 is not the same, the Examiner's concession with respect to amended claim 7 demonstrates, by the Examiner's own acknowledgement, that claim 1 cannot be anticipated by Voth as asserted in the Office Action.

preferably, after each of the messages within the burst. After the burst, a local time stamp mark is selected and reference times from the burst sent from the master node on each side, chronologically, of the local time stamp mark are identified. Then, those two reference time marks are essentially averaged and the average is compared to the intermediate local time stamp mark. The difference, if any, indicates the synchronization error for adjusting the local time, i.e., of the slave node, to compensate for the synchronization error. This synchronization correction of Strong is substantially different from the correcting unit and the corresponding synchronization time correction of claim 7 and its dependent claims.

The correcting unit of claim 7 internally determines a time difference between the synchronous timing time, indicated by the time stamp transmitted from the controller, and the local time, indicated by the global timer within the control device, i.e., slave node, and the synchronous timing time indicated by the operation period timer, another internal unit of the control device. This difference is used to determine a timer correction value. There are no multiple timing indicators received from the controller, no averaging of those multiple time indicators with a determination of a difference between an average value and an internal time. Rather, the correcting unit in the invention operates far more simply, relying upon only a single external time indicator to determine the amount of a timer correction required. In other words, Strong does not supply the part of claim 7 and its dependent claims acknowledged to be absent from Voth. Since a fundamental requirement for establishing *prima facie* obviousness is a demonstration that all of the elements of the claim rejected are known in the prior art and that requirement has not been met here, the rejection of originally presented claim 9, in the form of amended claim 7, and its dependent claims 8 and 10-14, is erroneous and should be withdrawn.

Rejoinder to Office Action

Paragraphs 59-77 of the Office Action mailed September 30, 2005 allegedly respond to the arguments presented in the response filed December 30, 2004. However, most of those comments are erroneous because the arguments were applied against the claims of the Preliminary Amendment, not against the claims that were supplied

December 30, 2004. Paragraph 59 of the remarks makes clear the error that occurred, with reference being made to the Preliminary Amendment as if it is a “updated Amendment”. In order to avoid any possibility that the present Response might be considered non-responsive, Applicants respond to the comments of paragraphs 60-77 of the Office Action, using the paragraph numbers of the Office Action.

Paragraphs 60 and 61 refer to language formerly appearing in claim 14 that no longer appears there. The issue discussed there is moot.

Paragraphs 62 and 63 reflect confusion concerning the first and second global timers and what is shown in Figure 21 and claimed in claim 15. The Examiner is asked to give careful attention to the suffixes that appear as part of the reference numbers. The controller includes the first and second global timers 13A and 13B whereas controlled device 3a includes a global timer, referred to in the claim as the third global timer, 13a, and controlled device 3b includes a global timer 13b. Either of the timers 13a and 13b can be the third global timer of claims 15 and 16.

The remarks in paragraphs 64 and 65 are moot in view of the previous amendment of claim 15 that was not given proper attention in preparing the Office Action of September 30, 2005.

The comments in paragraphs 66 and 67 likewise are not pertinent because they fail to take into account the previous amendment of claim 2.

With regard to paragraph 68, Applicants simply disagree with the Examiner’s position for the reasons previously provided and the additional reasons provided in this Response.

Paragraph 69 fails to acknowledge previous claim amendments because of the confusion that occurred on the Examiner’s side.

The Examiner acknowledged resolution of certain issues in paragraphs 70 and 71 so that those paragraphs do not need response.

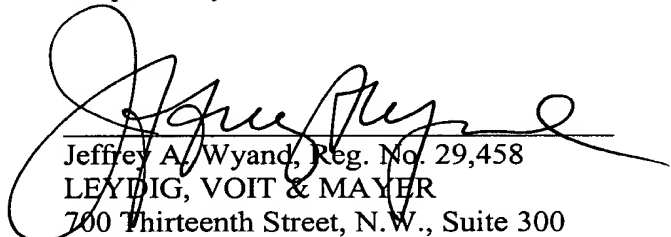
The Examiner’s comments in paragraphs 72 and 73 fail to take into account the amendments made to claims 1 and 7 in the Amendment filed December 30, 2004. The comments are not pertinent to the claims presented then nor to the claims presented now and do not require further discussion.

The rejoinder concerning what is disclosed in Voth that appears in paragraphs 74 and 75 of the Office Action appears above. Even if the Examiner's interpretation of Voth concerning the number of networks that might be present is accepted, Voth would still not anticipate any pending claim for the reasons provided above. Applicants expressly traverse the Examiner's interpretation of Voth as describing the presence of first and second networks connected to respective controlled devices as in claims 15 and 16.

Paragraphs 76 and 77 of the Office Action failed to recognize that claim 9 was previously cancelled and that its limitation was incorporated into claim 7. To the extent that previous amendment made the previous rejection of claim 9 applicable to amended claim 7, that rejection is responded to in detail above.

Since this Amendment demonstrates that all claims now pending are patentable over Voth and Strong, considered separately and together, upon reconsideration, all pending claims should be allowed.

Respectfully submitted,



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